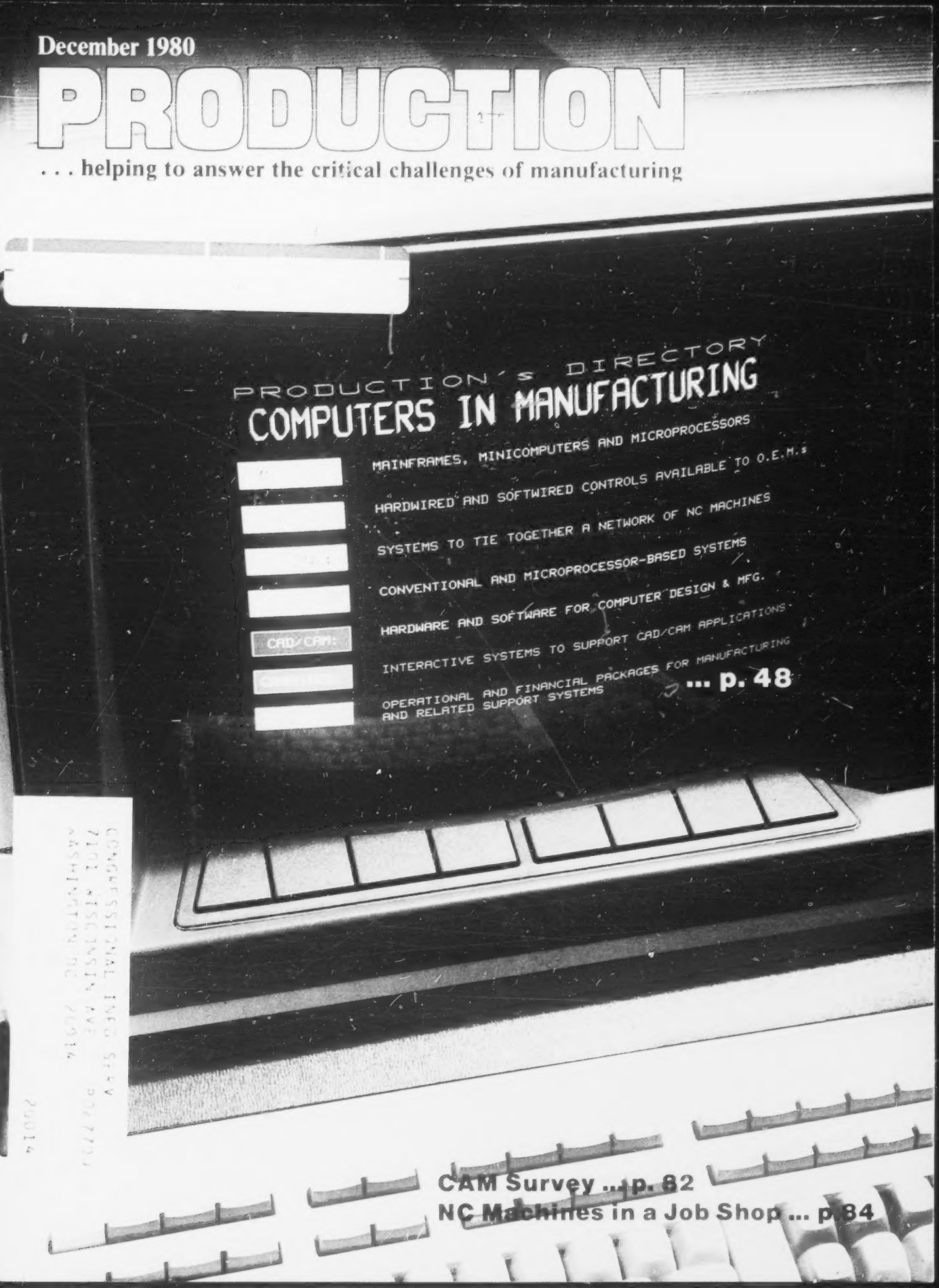
December 1980

PRODUCTION

. . . helping to answer the critical challenges of manufacturing


PRODUCTION'S DIRECTORY
COMPUTERS IN MANUFACTURING
MAINFRAMES, MINICOMPUTERS AND MICROPROCESSORS
HARDWIRED AND SOFTWIRED CONTROLS AVAILABLE TO O.E.M.s
SYSTEMS TO TIE TOGETHER A NETWORK OF NC MACHINES
CONVENTIONAL AND MICROPROCESSOR-BASED SYSTEMS
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CAD/CAM:
INTERACTIVE SYSTEMS TO SUPPORT CAD/CAM APPLICATIONS
OPERATIONAL AND FINANCIAL PACKAGES FOR MANUFACTURING AND RELATED SUPPORT SYSTEMS
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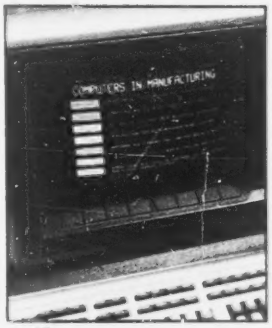
It is the purpose of **PRODUCTION** to recognize and to fulfill the special needs of the managers and engineers who are responsible for improving manufacturing efficiency, costs and quality in production metalworking plants, and selected supplier industries.



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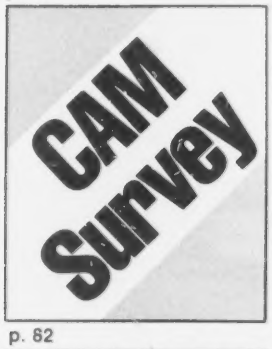

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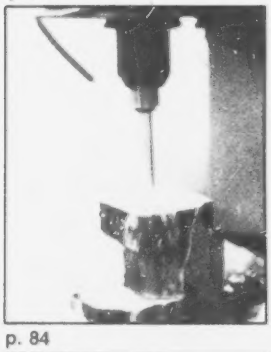

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Computers—180 Places To Go for Help
PRODUCTION's third annual Directory of Computers in Manufacturing focuses sharply on computers and computer-based controls and their software that are specifically dedicated to the needs of production plants.

Attitudes, Needs, Problems of CAM
A survey of 2000 plants turns up both problems and promises in applying computers to manufacturing. Lack of standardization and lack of understanding of detailed needs are major complaints.

NC Machines Increase Shop's Capacity, Capability
In a job shop, G & H Production Mfg., Inc., seven NC turning machines and three machining centers are doing more and better work than 60 conventional machine tools. The company's experience dates back to 1973.

From Supermarket to Super Shop
The president of Delphos Machine & Tool Co. is a strong believer in CNC in preference to NC. Problems with tape and faster, more reliable machine operation are his reasons.

Airframe Machining Productivity Soars
Super CNC spar mills representing state-of-the-art machining and fixturing technology provide an 800 percent productivity increase in producing Boeing's wing components. A next step may be linkage with CAD.

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Cover: Graphics for the cover and Directory of Computers in Manufacturing were developed by Kevin Spangler and Don Hill at Hewlett-Packard's Farmington Hills, MI, office on a 9845 C color graphics computer that can provide 4913 distinct shades of color.

Next Month: Domestic automakers' manufacturing operations shift gears to meet the challenges of the '80s.

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A survey of 2000 plants turns up both problems and promises in applying computers to manufacturing. Here are comments and results

Survey Reveals CAM Attitudes, Needs, Problems

"As users, we do not fully understand what we expect from computers. We set limits before we fully understand. As we progress, we spot capabilities previously not known by us. We then require changes because the original goal changes.

"Some day we will fully understand what we really require, and we'll be able to specify how we can get there."

That's the way a manufacturing engineer for an eastern aircraft company summed up what seems to be a consensus about the problems of getting computers into manufacturing. The two basic problems cited most frequently in a PRODUCTION random survey of 2000 plants have to do with, first, a lack of in-house knowledge and understanding about computer-aided manufacturing, and, second, a lack of standardization of systems and of software.

These are probably no new messages for either users or suppliers of Computer-Aided Manufacturing (CAM) systems, the survey does, however, confirm that the major inhibitors to greater application of CAM in metalworking has more to do with understanding than with technology. Just a year ago, in our special PRODUCTION Round Table article on computers, Frank Curtin, group vice president, Machine Tools, Cincinnati Milacron, Cincinnati, commented: "Why aren't computers being used more in manufacturing? The technology exists, but we lack the skilled people to implement the systems and to make them work. Every company has a real shortage of computer application engineers. The tools are there, but we haven't been smart enough to put them all together."

"We need very few more 'Star Wars' developments. What we would like from suppliers is more standardization."

In another PRODUCTION Round Table discussion in August, James F. Lardner, vice president, Deere & Co., Moline, IL, talked about the need for standardization as he commented on machine tool productivity. "Equipment uptime is becoming more and more important. Most of us who work with these problems at Deere feel that we need very few more 'Star Wars' developments. What we would like from suppliers is more standardization. We want machine tool languages we don't have to translate. We want standardization of controls so we don't have to carry 160,000 different electronic components to service the various controls we have at one of our large factories. We want a great deal more standardization of software interfaces."

In the current survey, a respondent from a New York company that has applied computers for every queried application except environmental control made a single comment with regard to problems with computers: "We

continue to have problems with interactions between systems."

Payoffs. Nonetheless, computers are paying off for the survey respondents, and these users seem to be intent on solving whatever problems they encounter rather than avoiding them by steering clear of computers.

The benefits they checked are led by better control of work-in-process, followed closely by direct labor reductions—both big-ticket cost items where improvements through use of the computer can be dramatic. Only 55 percent indicated that they have an overall data base for their plant. Without such a data base, the marriage of systems or the joining of different facets of CAM is made more difficult.

Those respondents who have not yet applied computers had no single outstanding reason for not using computers (only 5 percent felt there was no discernible need), but nearly a quarter of them listed people problems (lack of time to apply or lack of in-house expertise) as the major reasons for not yet getting into computers.

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Despite the given reasons noted by some respondents for not getting into computers, CAM is a mushrooming activity in metalworking. PRODUCTION's annual Capital Spending Forecast shows that computer data systems for manufacturing will continue to be important capital investments through 1981 and 1982. □

PRODUCTION'S CAM SURVEY

1. Percentage of plants now using computers in:

Plant management and information systems (including scheduling, data collection, MRP, etc.)	89%
Direct machine (process) control (CNC, DNC, etc.)	63
Engineering support (including time study, line balancing, tool design, etc.)	53
Testing and inspection	41
Machine (process) monitoring	32
Environmental control	17

2. Area proven to be most effective.

Plant management and information systems	39%
Direct machine (process) control	35
Engineering support	14
Testing and inspection	11
Machine (process) monitoring	9
Environmental control	3

3. Major benefit of computers as they have been applied.

Better control of work in process	64%
Direct labor savings	59
Improved use of manpower	52
Better manufacturing flexibility	51
Improved machine utilization	49
Improved documentation/work measurement	48
Faster, better part programming	38

4. Major problem in implementing computers in manufacturing.

Lack of in-house computer knowledge	46%
Initial cost	27
Inability to verify adequate return on investment	25
Unavailability of appropriate software	24
Inadequate data base for computer operation	24
Inadequate training from the vendor	15
Hardware reliability	15

5. Among those who have not yet applied computers to manufacturing, these are the reasons most often cited:

Lack of staff time to engineer and apply computer systems	14%
Lack of in-house expertise required to apply computers	10
Not able to document justification	7
No discernible need (advantage) at this plant	5
Too costly	4
Do not have the data needed to feed the computer	3
Fear of computerization	2
Software not available for needs	2

NOTE

ONLY THE FOLLOWING PAGES OF THIS

PUBLICATION HAVE BEEN FILMED

Cover 1, p. 1, 23, 25.